CLAIMS

What is claimed is:

1. An apparatus comprising:

user mode logic;

kernel mode logic; and

kernel mode to user mode interface logic configured to receive at least one data packet over a shared communication port and selectively distribute said data packet to either said user mode logic or said kernel mode logic.

2. The apparatus as recited in Claim 1, wherein said kernel mode to user mode interface logic further includes:

bridge logic configured to individually determine if said received data packet is a user mode data packet that is to be selectively distributed to said user mode logic or a kernel mode data packet to be selectively distributed to said kernel mode logic.

3. The apparatus as recited in Claim 2, further comprising:

memory operatively coupled to said bridge logic, and wherein said bridge logic is further configured to store a plurality of user mode data packets in said memory.

4. The apparatus as recited in Claim 3, wherein said bridge logic is configured to store said plurality of user mode data packets in said memory in a queued buffer configuration.

5. The apparatus as recited in Claim 3, wherein said kernel mode to user mode interface logic further includes:

miniport logic operatively coupled to said bridge logic and said memory and configured to selectively retrieve at least one of said plurality of user mode data packets stored in said memory and provide said at least one retrieved data packet to said user mode logic.

6. The apparatus as recited in Claim 3, further comprising:

a physical network communication port operatively coupled to said bridge logic and configurable to receive both user mode data packets and kernel mode data packets from an external device.

7. The apparatus as recited in Claim 1, wherein:

said user mode logic is further configured to generate at least one outgoing user mode data packet;

said kernel mode logic is further configured to generate at least one outgoing kernel mode data packet; and

said kernel mode to user mode interface logic is further configured to receive said outgoing user mode data packet from said user mode logic and said outgoing kernel mode data packet from said kernel mode logic.

8. The apparatus as recited in Claim 5, wherein:

said bridge logic is configured to receive said outgoing kernel mode data packet from said kernel mode logic; and

said miniport logic is configured to receive said outgoing user mode data packet from said user mode logic and further configured to store a plurality of outgoing user mode data packets in said memory.

9. The apparatus as recited in Claim 8, wherein said miniport logic is configured to store said plurality of plurality of outgoing user mode data packets in said memory in a queued buffer configuration.

10. The apparatus as recited in Claim 8, wherein said bridge logic is further configured to selectively retrieve at least one of said plurality of outgoing user mode data packets stored in said memory.

11. The apparatus as recited in Claim 10, further comprising:

a physical network communication port operatively coupled to said bridge logic and configurable to send both user mode data packets and kernel mode data packets to an external device; and

wherein, said bridge logic is configured to provide said outgoing kernel mode data packet and said retrieved outgoing user mode packet to said network communication port.

12. The apparatus as recited in Claim 2, further comprising:

at least one processing unit operatively configured to selectively run in kernel mode or user mode; and wherein said bridge logic includes virtual bridge logic provided by said processing unit while running in said kernel mode.

13. The apparatus as recited in Claim 5, further comprising:

at least one processing unit operatively configured to selectively run in kernel mode or user mode; and wherein said miniport logic includes virtual miniport logic provided by said processing unit while running in said user mode.

14. The apparatus as recited in Claim 2, wherein said kernel mode logic further includes:

kernel mode debugging logic coupled to said bridge logic.

15. The apparatus as recited in Claim 5, wherein said user mode logic further includes:

network protocol logic operatively coupled to said miniport logic; and

application level logic operatively coupled to said network protocol logic.

16. The apparatus as recited in Claim 6, wherein said physical network communication port is configurable to provide a network connection to a TCP/IP network.

17. The apparatus as recited in Claim 6, wherein said physical network communication port is configurable to provide a network connection to the Internet.

18. The apparatus as recited in Claim 6, wherein said apparatus is included within a device having only one said physical network communication port.

19. A method comprising:

providing at least one processing unit to selectively run user mode logic and kernel mode logic;

receiving at least one data packet through a shared communication port; and

while said processing unit is running said kernel mode logic, selectively handling said data packet for use with either said user mode logic or said kernel mode logic.

20. The method as recited in Claim 19, wherein selectively handling said data packet for use with either said user mode logic or said kernel mode logic further includes:

determining if said received data packet is a user mode data packet for use by said user mode logic or a kernel mode data packet for use by said kernel mode logic; and

storing received data packets determined to be user mode data packets in memory.

21. The method as recited in Claim 20, wherein storing received data packets determined to be user mode data packets in memory further includes storing a plurality of such user mode data packets in said memory in a queued buffer configuration.

22. The method as recited in Claim 20, further comprising:

while said processing unit is running said user mode logic, selectively retrieving at least one stored user mode data packet from said memory, and

providing said at least one retrieved data packet to said user mode logic.

23. The method as recited in Claim 19, wherein said shared communication port includes a physical network communication port operatively configurable to receive both user mode data packets and kernel mode data packets from an external device.

24. The method as recited in Claim 19, further comprising:

while said processing unit is running said user mode logic, causing said user mode logic to generate at least one outgoing user mode data packet, and storing said at least one outgoing user mode data packet in said memory; and

subsequently, while said processing unit is running said kernel mode logic, causing said kernel mode logic to send said at least one outgoing user mode data packet stored in said memory through said shared communication port.

25. The method as recited in Claim 24, wherein storing said at least one outgoing user mode data packet in said memory further includes storing a plurality of plurality of outgoing user mode data packets in said memory in a queued buffer configuration.

26. The method as recited in Claim 19, further comprising:

while said processing unit is running said kernel mode logic, causing said kernel mode logic to generate at least one outgoing kernel mode data packet, and sending said at least one outgoing kernel mode data packet through said shared communication port.

27. The method as recited in Claim 19, wherein said kernel mode logic includes debugging logic.

28. The method as recited in Claim 19, wherein said user mode logic includes network protocol logic and application level logic.

29. The method as recited in Claim 19, wherein said processing unit is included within a device having only one physical network communication port, which operates as said shared communication port.

30. A computer readable media having computer instructions for performing acts comprising:

selectively running at least one processing unit using either user mode logic or kernel mode logic;

receiving at least one data packet through a shared communication port; and

while running said kernel mode logic, selectively handling said data packet for use with either said user mode logic or said kernel mode logic.

31. The computer readable media as recited in Claim 30, wherein selectively handling said data packet for use with either said user mode logic or said kernel mode logic further includes:

determining if said received data packet is a user mode data packet for use by said user mode logic or a kernel mode data packet for use by said kernel mode logic; and

storing received data packets determined to be user mode data packets in memory.

32. The computer readable media as recited in Claim 31, wherein storing received data packets determined to be user mode data packets in memory further includes storing a plurality of such user mode data packets in said memory in a queued buffer configuration.

33. The computer readable media as recited in Claim 31, having further computer instructions for performing acts comprising:

while said processing unit is running said user mode logic, selectively retrieving at least one stored user mode data packet from said memory, and

providing said at least one retrieved data packet to said user mode logic.

34. The computer readable media as recited in Claim 30, wherein said shared communication port includes a physical network communication port operatively configurable to receive both user mode data packets and kernel mode data packets from an external device.

35. The computer readable media as recited in Claim 30, having further computer instructions for performing acts comprising:

while said processing unit is running said user mode logic, causing said user mode logic to generate at least one outgoing user mode data packet, and storing said at least one outgoing user mode data packet in said memory; and

subsequently, while said processing unit is running said kernel mode logic, causing said kernel mode logic to send said at least one outgoing user mode data packet stored in said memory through said shared communication port.

36. The computer readable media as recited in Claim 35, wherein storing said at least one outgoing user mode data packet in said memory further includes storing a plurality of plurality of outgoing user mode data packets in said memory in a queued buffer configuration.

37. The computer readable media as recited in Claim 30, having further computer instructions for performing acts comprising:

while said processing unit is running said kernel mode logic, causing said kernel mode logic to generate at least one outgoing kernel mode data packet, and sending said at least one outgoing kernel mode data packet through said shared communication port.

38. The computer readable media as recited in Claim 30, wherein said kernel mode logic includes debugging logic.

39. The computer readable media as recited in Claim 30, wherein said user mode logic includes network protocol logic and application level logic.

40. The computer readable media as recited in Claim 30, wherein said processing unit is included within a device having only one physical network communication port, which operates as said shared communication port.